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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/298,508 04/22/99 ECHELARD

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EXAMINER

W01TACH, J

ART UNIT

PAPER NUMBER

1632

DATE MAILED:

14
06/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/298,508

Applicant(s)

ECHELARD ET AL.

Examiner

Joseph Weitach

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extension of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2001.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-14,17-28,30,31,34-44,47-58,60,61,65-73,86-88,90 and 91 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-14,17-20,30,31,34-44,47-58,60,61,65-73,86-88 and 90-91 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ A determination is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ None b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See attached detailed Office action for a list of the certified copies not received.
- 14) ☒ A determination is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of Informal Patent Drawing (PTO-892)
- 16) ☐ Notice of Informal Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

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DETAILED ACTION

This application is an original application filed April 22, 1999, which claims benefit to application 60/106,728 filed November 2, 1998.

Applicants amendment filed March 23, 2001, paper number 13, has been received and entered. Claims 2, 3, 15, 16, 29, 32, 33 45, 46, 59, 62-64, 74-85 and 89 have been canceled. Claims 1, 4-7, 9, 10, 12-14, 17, 18, 21, 22, 25, 30 , 31, 34-44, 47-58, 60, 61, 65-67, 69, 70, 72, 73, 90, and 91 have been amended. Claims 1, 4-14, 17-28, 30, 31, 34-44, 47-58, 60, 61, 65-73, 86-88, 90 and 91 are pending and currently under examination.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: The full name of Esmail Behbodi does not match the signature Esmail Behbodi.

Applicants have not provided a substitute declaration nor addressed the defect in the instant declaration present in the application. Therefore, the objection is maintained.

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4-14, 17-28, 30, 31, 34-44, 47-58, 60, 61, 65-73, 86-88, 90 and 91 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically:

Claims 1 and 31 are unclear in the recitation of "the cell comprises a transgene into the genome of the somatic cell" because antecedent basis for the 'the cell' is not clearly defined. The claim is drawn to a purified embryonic or fetal caprine somatic cell which is derived from a germ cell obtained from transgenic goat. It is not clear if 'the cell' containing the transgene is the germ cell or the purified somatic cell.

Claims 14, 44 and 61 are unclear in the recitation of "the cell comprises a heterologous nucleic acid sequence which is integrated into the genome of the somatic cell" because antecedent basis for the 'the cell' is not clearly defined. The claim is drawn to a purified embryonic or fetal caprine somatic cell which is derived from a germ cell obtained from transgenic goat. It is not clear if 'the cell' containing the transgene is the germ cell or the purified somatic cell.

Dependent claims are included in each of the above rejections because they fail to clarify the basis of to which cell 'the cell' refers.

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Double Patenting

Claims 28, 58, 88 objected to under 37 CFR 1.75 as being a substantial duplicate of claims 27, 57, 87 is withdrawn.

Applicants have pointed to specification to demonstrate that 'primary derived somatic cells' refers to primary cells which have undergone at least one division that a primary cell (specification page 10, lines 9-11). In light of the definition present in the specification Examiner agrees that the scope of the claims differs. Therefore, the objection is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1 and 31 rejected under 35 U.S.C. 102(b) as being clearly anticipated by ATCC number CCL-73 is withdrawn.

Amendments to claims 1 and 31 to encompass a cell comprising a transgene have obviated claimed invention from that taught in ATCC number CCL-73 who only teach a goat cell line.

Therefore, the rejections are withdrawn.

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Claims 1, 31 and 61 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Amoah *et al.* is withdrawn.

Applicants argue that Amoah *et al.* teach advances in goat reproduction but do not teach or suggest somatic cells obtained from a embryonic or fetal goat, and thus every limitation of the claim is not taught. Examiner agrees that the amendment to the claims have obviated the claimed invention from the teachings in Amoah *et al.* Therefore, the rejection is withdrawn.

Claims 1, 4, 5, 7, 12-14, 17, 19, 24-28, 31, 34, 35, 37, 42-44, 47, 49, 54-58, 61, 65, 67, 72, 73, 86-88 stand rejected under 35 U.S.C. 102(b) as being clearly anticipated by Archer *et al.*

Applicants argue that amendments to the claims have obviated the basis of the rejection. Applicants argue that Archer *et al.* do not demonstrate that the vector integrates into the genome of the cell, nor that the cell are obtained from a germ cell of a transgenic goat. Applicants arguments have been fully considered but not found persuasive.

The recited claims encompass a purified or a purified preparation of embryonic or fetal caprine somatic cell(s) wherein the cell comprises a transgene wherein the transgene comprises a heterologous sequence encoding a polypeptide. Further, methods for preparing said cell with described embodiments are also recited. With respect to the integration of the polynucleotide into the genome of the cell, it should be noted that Archer *et al.* use a retroviral vector system to introduce the transgene into the cells. It is well known in the art that retroviral vectors must integrate into the genome of an infected cell as part of their replication cycle, and as specifically

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taught on page 6843, top of second column, Archer *et al.* teach that '[I]ntegration of the provirus is dependent on the M phase of the cell cycle' indicating that the retroviral vector used integrates into the genome. Examiners agrees that the reference does not demonstrate that the vector or the transgene is integrated, however inherent to the retroviral vectors used in Archer *et al.* is that the vectors must integrate into the genome.

With respect to the source of the cell, the cell represents a product by process because of the manner it is obtained. Patentability of a product-by-process claim is determined by the novelty and nonobviousness of the claimed product itself without consideration of the process for making it which is recited in the claims. *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985). Thus, the recited claims encompass a purified or purified preparation of embryonic or fetal caprine somatic cell wherein the cell comprises a transgene. Archer *et al.* clearly teach the introduction of a transgene into caprine cells. Specifically, Archer *et al.* use two retroviral vectors containing the heterologous nucleic acid sequences encoding a transgene for hGH and β -galactosidase (page 6841; figure 1). These vectors are used to transduce said goat cells to create goat cells which contain a transgene and encode a polypeptide (pages 6842-3; Tables 2, 3 and 4 and figure 3). Further, Archer *et al.* teach two sources of purified goat cells; Ch1Es cells and goat mammary epithelial (GME) cells. Ch1Es cells can be obtained from ATCC (ATCC listing attached) and represent fibroblast cells derived for a goat fetus at 2/3 term. GME cells are primary somatic cells derived from adult early-lactation goats (page 6840; material and methods). Archer *et al.* also teach methodology to derive GME cells. Thus, Archer *et al.* teach fetal caprine somatic cell

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comprising a transgene, and thus, anticipate the claims. Therefore, for the reasons above and of record, the rejection is maintained.

Claims 61, 65-73, 86-88, 90 and 91 stand rejected under 35 U.S.C. 102(e) as being anticipated by Strelchenko *et al.*

Applicants argue that Strelchenko *et al.* teach totipotent cells useful for cloning animals, and because the claims are drawn to somatic cells, which are only pluripotent and cannot give rise to any cell type, Strelchenko *et al.* so not teach the claimed invention. Applicants arguments have been fully considered but not found persuasive.

Applicant is correct in differentiating totipotent and pluripotent cells, however it is the totipotent cell which gives rise to the pluripotent cell, and thus, the totipotent cell is capable of generating any somatic cell in the entire animal as demonstrated b the teaching in Strelchenko *et al.* Strelchenko *et al.* specifically teach multiple embodiments to their invention as summarized in figures 3 and 4. Specifically, in figure 4, the flow chart clearly indicates the isolation of immortalized cells and screening for transgene expression. Further, Strelchenko *et al.* teach the various stages of the embryo and fetus development, as well as developed cells and indicate that cells can be obtained from any of these sources and put into cell culture. Strelchenko *et al.* teach a method of establishing a cultured cell (column 44; Example 2). Examples specific promoters, in particular milk protein promoters (column 12; lines 30-37), specific transgenes encoding specific polypeptides such as hormones, enzymes, plasma proteins and immunoglobulins are

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recited throughout the specification (for example column 36; lines 7-63). Finally, transgenic cells can be prepared from transgenic animals (columns 50-52; Example 8). Thus, the teachings of Strelchenko *et al.* anticipate the claims, and therefore, the rejection is maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 5, 7-14, 17, 19-28, 30, 31, 34, 35, 37-44, 47, 49-58, 60 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Archer *et al.* and Amoah *et al.*

Applicants argue that amendments to the claims have obviated the basis of the rejection. Applicants argue that Archer *et al.* do not demonstrate that the vector integrates into the genome of the cell, nor that the cell are obtained from a germ cell of a transgenic goat. Applicants summarize the teachings of Amoah *et al.* and argue that Amoah *et al.* do not teach the

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purification of any goat cell from an embryo or fetus, nor that the cell is derived from a transgenic goat. In addition, Applicants question the motivation to combine the two references pointing out that the focus of the research in each the references results in different ends. Applicants arguments have been fully considered but not found persuasive.

In response to Applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found in either the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d and *In re Jones*, 958, F.2d 347, 21 USPQ2d. In this case, Applicants invention is broadly drawn to an embryonic or fetal caprine somatic cell wherein the cell comprises a transgene. Examiner would maintain that it is routine in the art to isolate embryonic and fetal cells from any animal, and in particular from transgenic animals wherein the transgene may be embryonic lethal to study the effect of the transgene effect on said cells. The Ch1Es cells described in Archer *et al.* are one such line derived from a normal 2/3 term goat. As noted above in the 35 USC 102 rejection above, Archer *et al.* anticipate the claimed invention encompassed by claims 1, 4, 5, 7, 12-14, 17, 19, 24-28, 31, 34, 35, 37, 42-44, 47, 49, 54-58, 61, 65, 67, 72, 73, 86-88. The basis of the present rejection is to teach other promoters and transgenes which were known in the art and/or already used to target transgene expression in transgenic goats as taught in Amoah *et al.* In light of the level of skill and knowledge in the art of transgenic animals, evaluating either of the two

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references as a whole, it would have been obvious to combine the teachings of the two references to obtain a purified embryonic or fetal caprine somatic cell wherein the cell contains a transgene with the embodiments recited in claims 1, 4, 5, 7-14, 17, 19-28, 30, 31, 34, 35, 37-44, 47, 49-58, 60. Therefore, for the reasons above and of record, absent of evidence to the contrary, the claimed invention as a whole was clearly *prima facie* obvious, and thus, the rejection is maintained.

Claims 1, 4-14, 17-28, 30, 31, 34-44, 47-58, 60, 61, 65-73, 86-88, 90 and 91 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Archer *et al.* and Amoah *et al.* as applied to claims 1, 4, 5, 7-14, 17, 19-28, 30, 31, 34, 35, 37-44, 47, 49-58, 60 above, and further in view of Strelchenko *et al.*

Applicants argue that Archer *et al.* and Amoah *et al.* do not teach the claimed invention. Further, it is argued that Strelchenko *et al.* teach a totipotent cell rather than a somatic cell and thus, do not make up for the deficiencies of Archer *et al.* and Amoah *et al.* Applicants arguments have been fully considered but not found persuasive.

As discussed above, Archer *et al.* and Amoah *et al.* make obvious the invention of claims 1, 4, 5, 7-14, 17, 19-28, 30, 31, 34, 35, 37-44, 47, 49-58, 60. Further, as discussed above in the 35 USC 102 rejection, the teaching of Archer *et al.* anticipate claims 1, 4, 5, 7, 12-14, 17, 19, 24-28, 31, 34, 35, 37, 42-44, 47, 49, 54-58, 61, 65, 67, 72, 73, 86-88. In addition, as discussed above in the 35 USC 102 rejection, Strelchenko *et al.* anticipate claims 61, 65-73, 86-88, 90 and

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91. Clearly from the overlapping claims included in the 35 USC 102 rejections the references teach overlapping subject matter which anticipates specific embodiments of the claimed invention. Presently, Strelchenko *et al.* was used to make obvious the deficiencies of specific embodiments not specifically taught in Archer *et al.* nor Amoah *et al.* As noted above, Strelchenko *et al.* teach the creation of transgenic animals and the methods to isolate and culture cells from animals for use in the methodology. Further, it was noted that Strelchenko *et al.* teach multiple embodiments of their invention as summarized in Figures 3 and 4 and detailed throughout the entire specification. Therefore, for the reasons above and of record, absent of evidence to the contrary, the claimed invention as a whole was clearly *prima facie* obvious, and thus, the rejection is maintained.

Conclusion

No claim allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

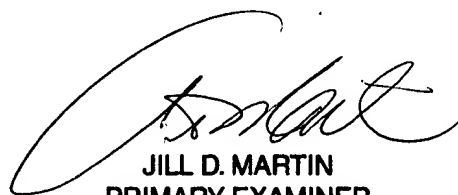
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Woitach, whose telephone number is (703) 305-3732. The examiner can normally be reached on Monday through Friday from 8:00 to 4:30 (Eastern time).

If attempts to reach the examine by telephone are unsuccessful, the examiner's supervisor, Karen M. Hauda, can be reached on (703) 305-6608. The fax number for group 1600 is 1 (800)308-4242.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist Kay Pickney whose telephone number is (703)306-3076.

Papers related to this application may be submitted by facsimile transmission. Papers should be faxed via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center numbers are (703)308-4242 and (703)305-3014.

Joseph T. Woitach



JILL D. MARTIN
PRIMARY EXAMINER